

# **Exhibit 12**



# MiNO International Communication Services Framework

Richard Xu



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# Core Services

- **Voice Services**
  - Terminating International Voice Calls for Enterprises and Consumers
    - SIP-Trunking to IP-PBX
    - Call forwarding to MiNO Gateway
    - MiNO Phone for Consumers to seamlessly make International calls
  - Pre or dynamically assigned local mobile numbers when roaming to other countries
    - Calling local phone number without any roaming charge
    - Calling home countries via MiNO Services
  - Roaming Voicemail
    - Call is routed voicemail system when MiNO roamer is not available
- **Data Services**
  - Enabling BlackBerry Email Accessing at local mobile carriers who do not have direct connection to RIM Data center via MiNO Services
    - MiNO APN from local carriers
  - Mobile VPN accessing to Enterprise Intranet
    - MiNO APN designated for enterprises
    - IPSec VPN from MiNO to Enterprise

# Key Elements

- **MINO Client**
  - **Mobile Devices with 3G/GPRS/Wi-Fi Data channels**
    - Smartphones
    - Dual-Mode Phone (GSM/WiFi)
    - Blackberry
  - **Main Features**
    - **Secured Mino Signaling between device and MINO Server**
      - A reliable IP connection to carry MINO Signaling Protocol
    - **Connection Manager**
      - Maintain IP connection via 3G/GPRS/Wi-Fi
      - SIM Card Provisioning
    - **Mino Call Switching (MCS)**
      - MINO Routing Policy
      - MINO Accessing Points
      - CallForwarding provisioning when roaming
      - SIP/RTP\VOIP Engine/IM (Optional to device with Wi-Fi connection)

# Key Elements

- **Provisioning Portal**
  - **User Registration**
    - Enterprise Users with BlackBerry data service
    - Consumers
    - SIP account creation
    - Devices and associated carriers used in services
  - **Service Provisioning**
    - Subscribe Local Number/MiNO SIM Card provisioning
    - MiNO Client for Mobile Phones
    - SecureKey rendering for client downloading
  - **Service Database**
    - User profile
    - Interface to Carrier OSS or Importing procedure for SIM and Local Mobile Phone Number
  - **MiNO Administration**
    - Services setup
    - Enterprise Administrator provisioning
    - Rate Plans

# Key Elements

- MINO Service Controller (MSC)
  - MINO Signaling over TCP between MSC and MINO Mobile Client
  - Network based CallForwarding enabling when roaming to a foreign country
  - Real-time routing engine
    - SIP
    - MINO Protocol
    - Call Control to Media Gateway and Excel Switch
- SIP/Jabber/XMPP servers
- MINO Media Relay Server
  - Terminating MINO VOIP Call
  - Route call to another Media Gateway or Excel Switch
  - NAT/Firewall Traversal
- Excel Switch
  - PRI Trunking
  - SIP Trunking
- MINO QoS IP Backbone
  - Designated IP backbone connecting all MINO POPs

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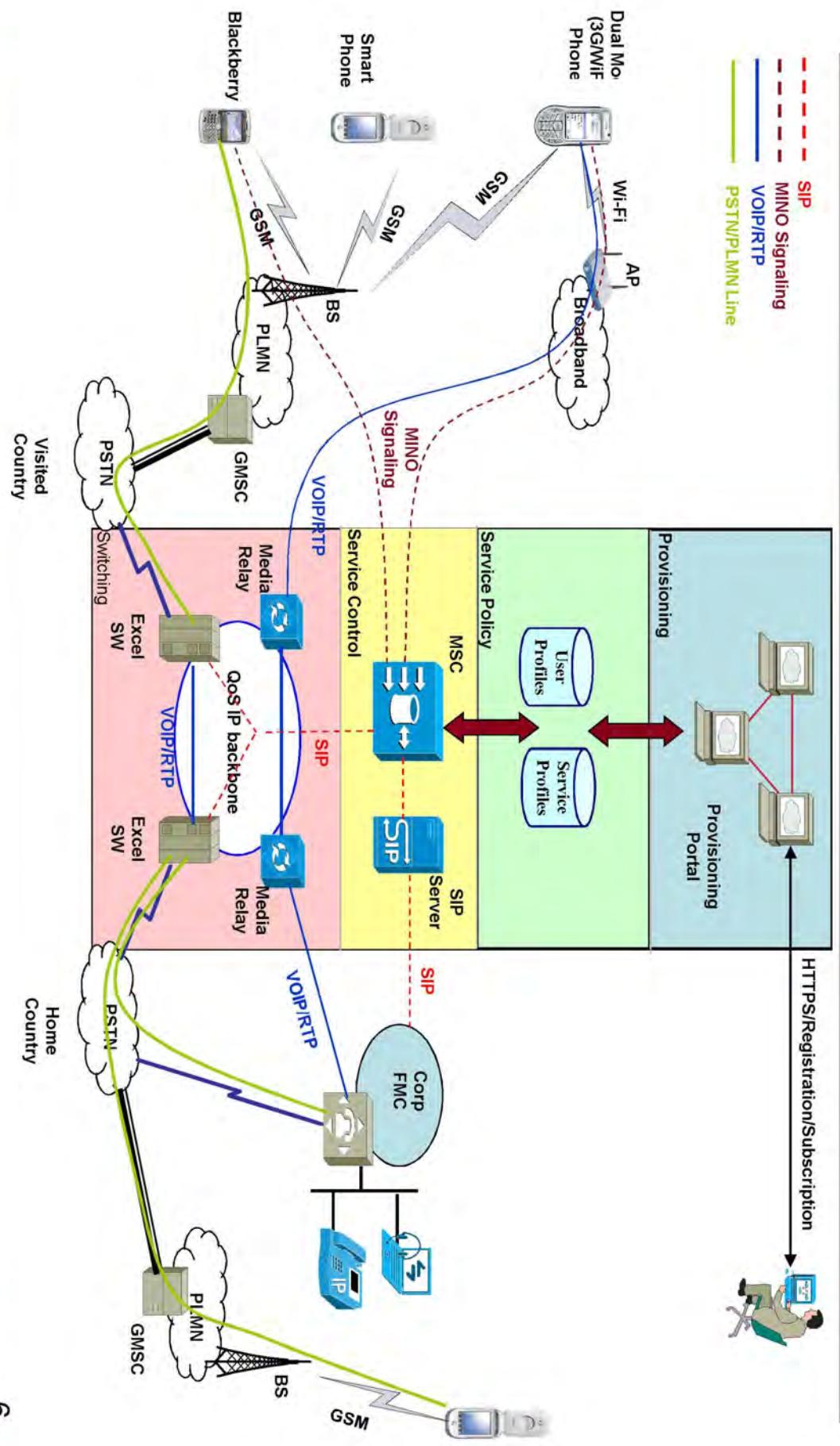
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# System Architecture



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# System Architecture

- Four Logic Layers
  - Provisioning
    - User Registration
    - Service Subscription
      - SIM Card and Local Numbers
      - SIP Account Creation
    - Downloading MiNO Client
  - Service Policy
    - Routing Policy
    - Rating
    - Use Authentication and Authorization
  - Service Control
    - Device access control
    - Dynamic Routing for each MiNO user
    - SIP Trunking control for Excel Switching
    - VOIP Access Control
    - NAT/Firewall Traversal
    - Enterprise IP-PBX Access Control
  - Switching and Transport
    - PSTN accessing and Call Switching
    - SIP trunking
    - Media Relay
    - IP QoS Backbone

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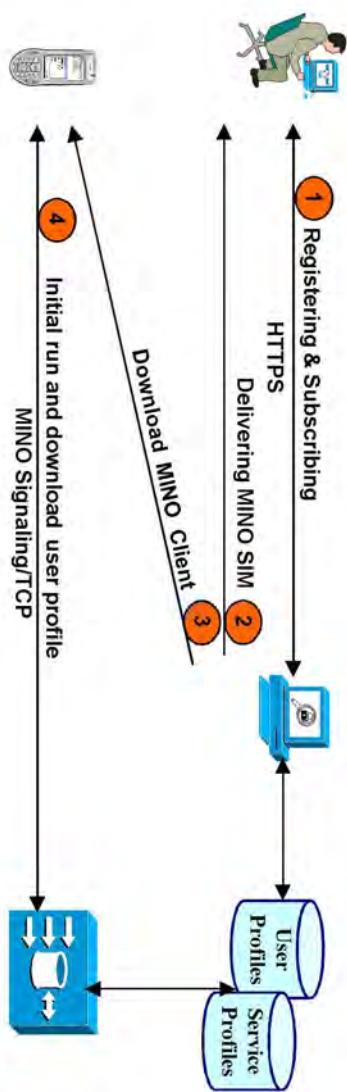
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# Use Cases

- (1) User Registration and Service subscription (Smartphone or BB)
  - Open Account with MiNO
  - User Credentials
    - Subscribe SIM
      - Permanent local mobile phone number designated countries
      - 3 dynamically shared mobile phone numbers for rest countries
  - Deliver MiNO SIM to end user
  - Download MiNO Client
  - Install and starting MiNO client



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# Use Cases

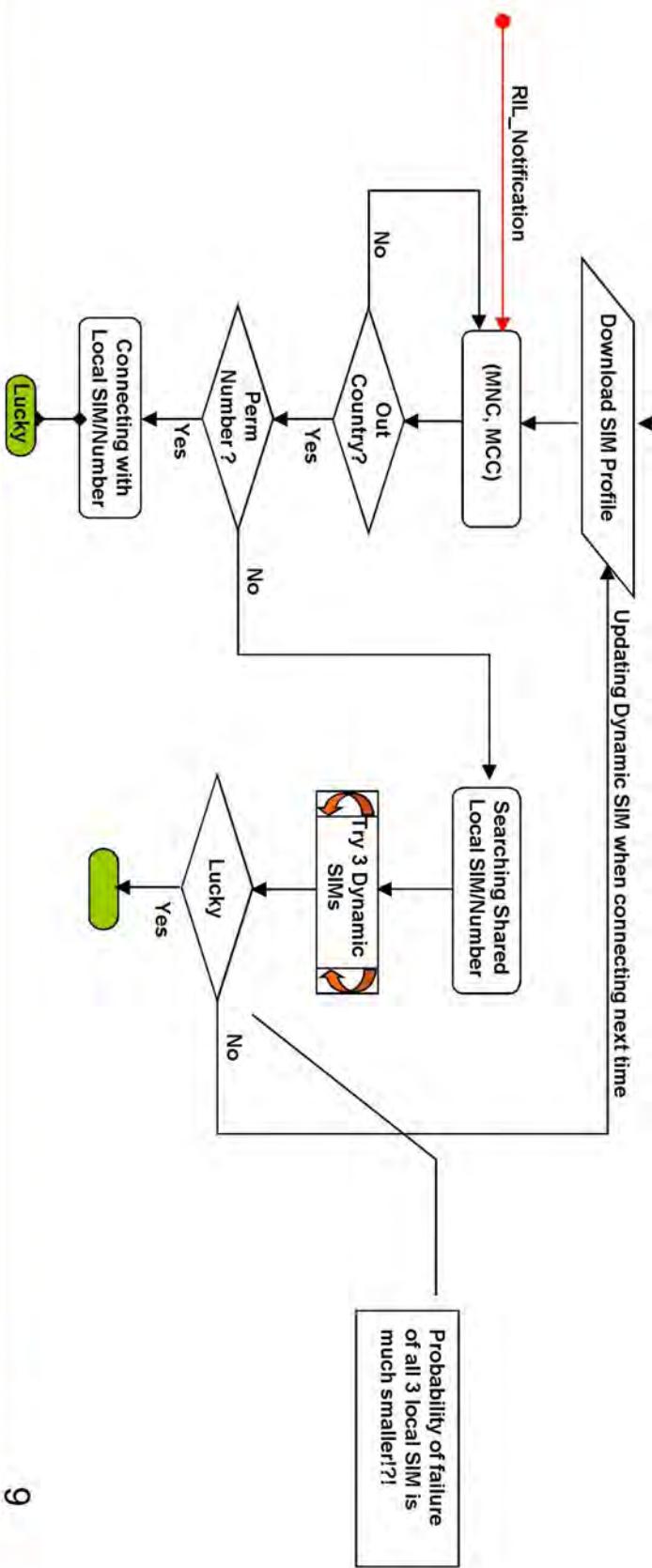
## (2) Algorithm for accessing local cellular network with MINO SIM

- MINO Client Component

- Connection Manager

- Manage MINO SIM to access local cellular network
- Manage multiple data connections

UMTS/HSDPA  
 EDGE  
 GPRS  
 Wi-Fi



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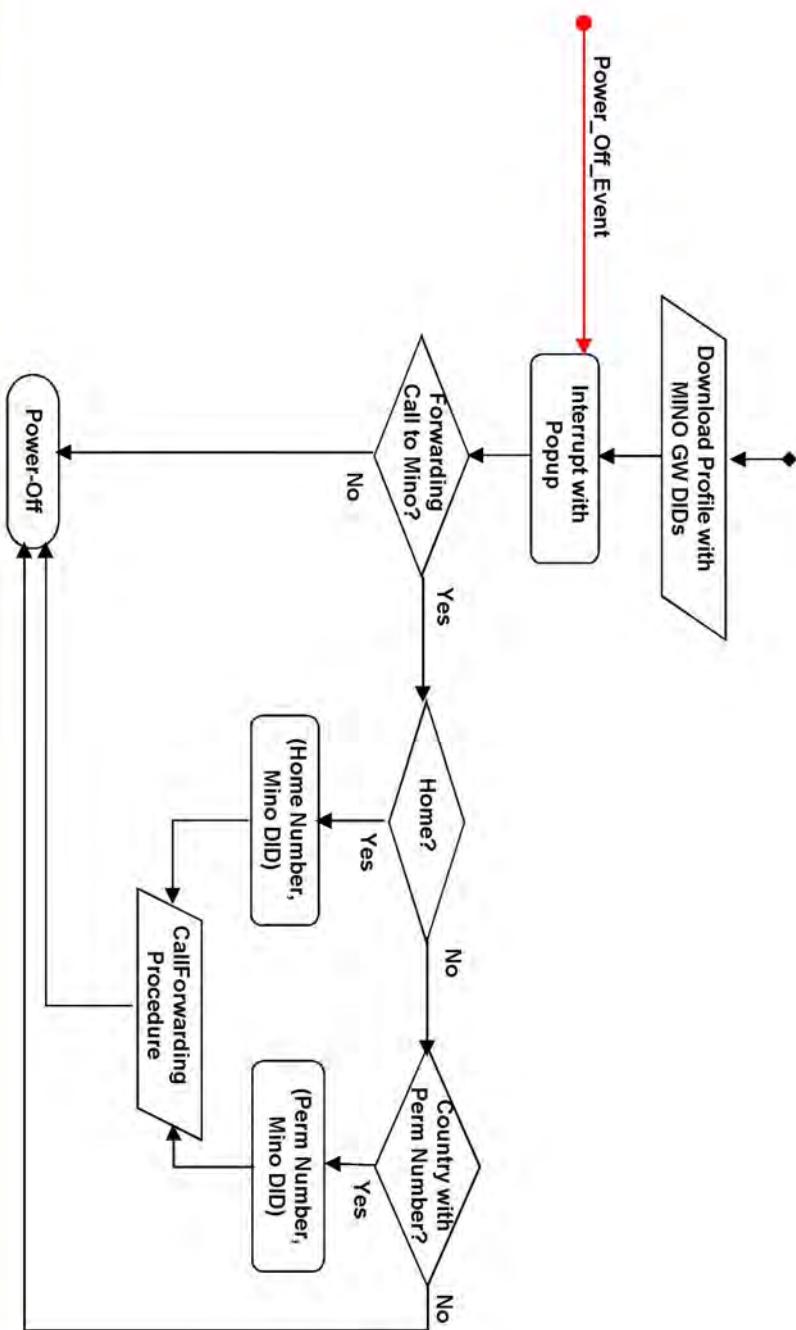
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## Use Cases

### (3) Roaming-In to China with MINO SIM (Smart Phone)

(a) User subscribed permanent local mobile phone

- Set CallForwarding before roaming to China or leaving China
- Client Approach
- Network Approach (TBD)



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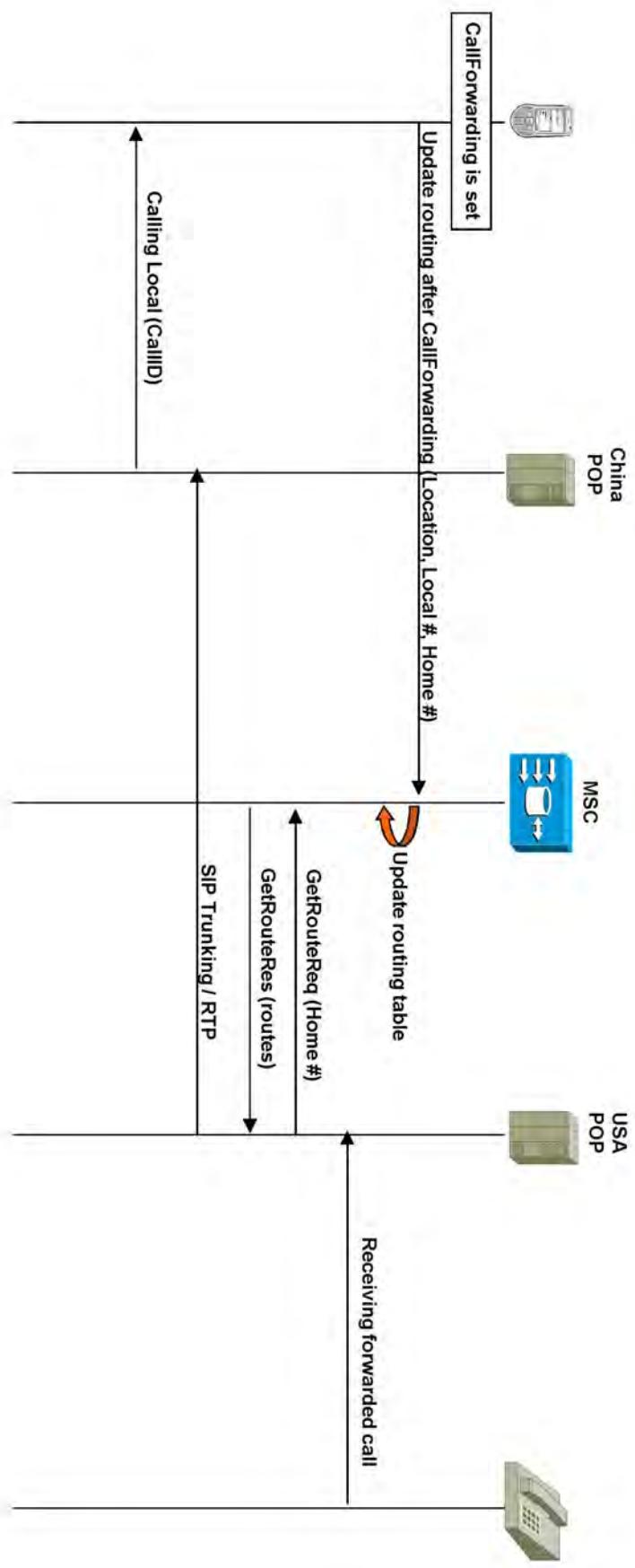
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# Use Cases

## (3) Roaming-In to China with MINO SIM (Smart Phone)

### (b) Receiving a call from USA

Voicemail should be provided for the incoming calls during power off after callForwarding is set



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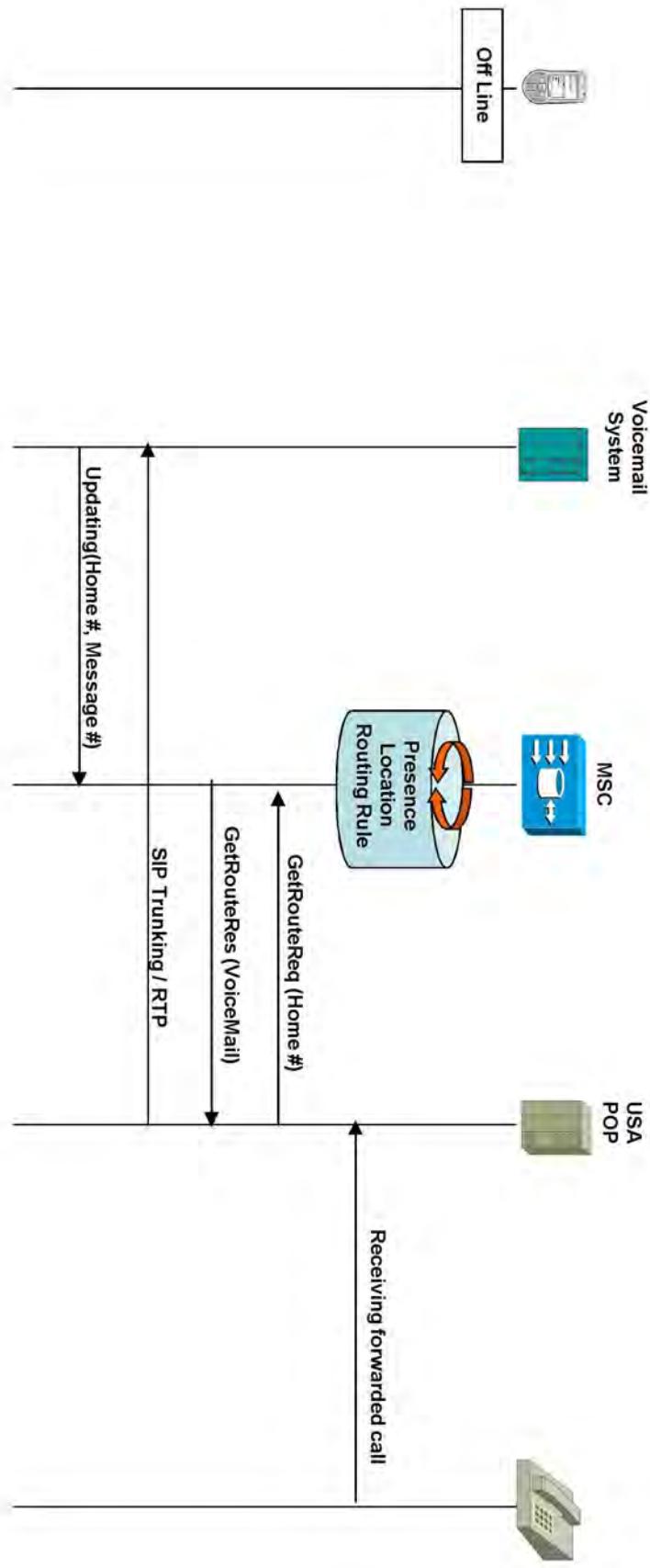
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# Use Cases

(3) Roaming-In to China with MiNO SIM (Smart Phone)

(c) Receiving a call from USA, and routed to Voicemail



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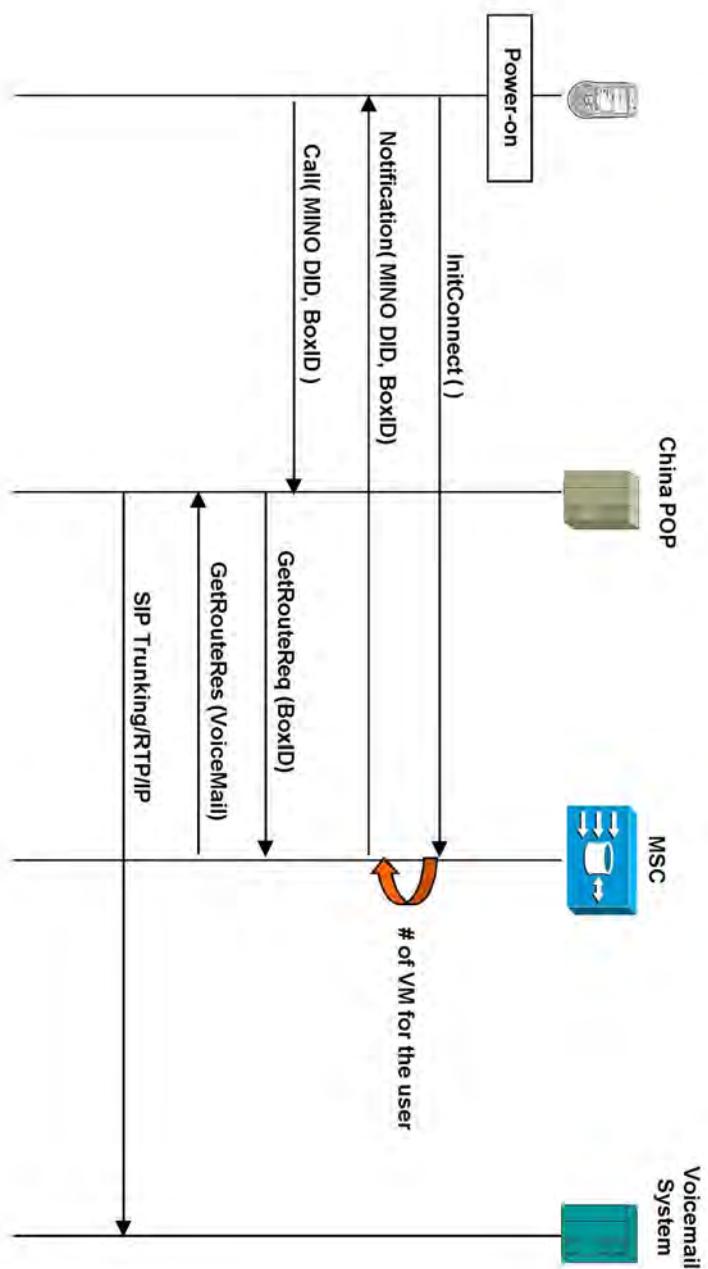
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# Use Cases

(3) Roaming-In to China with MiNO SIM (Smart Phone)

(d) Retrieving Voicemail from MiNO

Notification via MiNO signaling protocol



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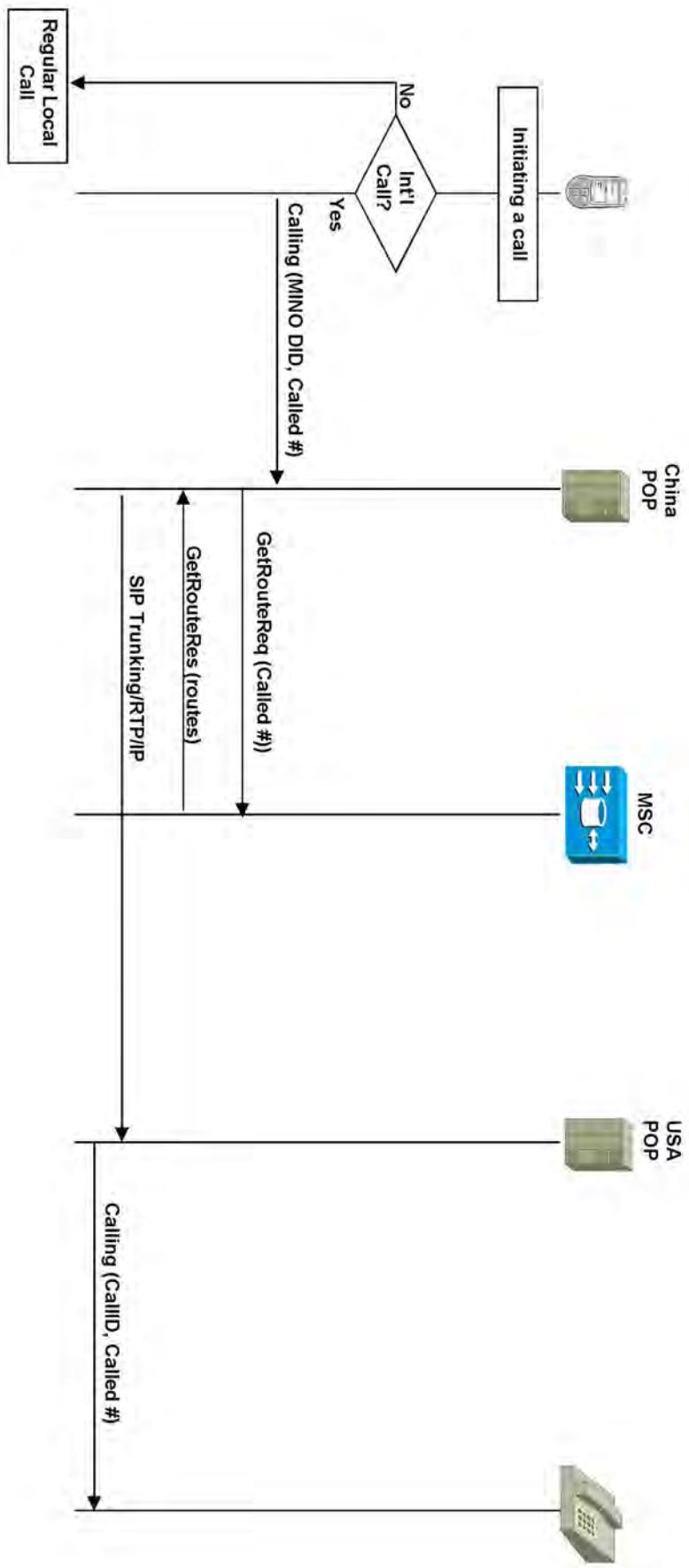
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# Use Cases

(3) Roaming-In to China with MINO SIM (Smart Phone)  
 (e) Making a call to USA



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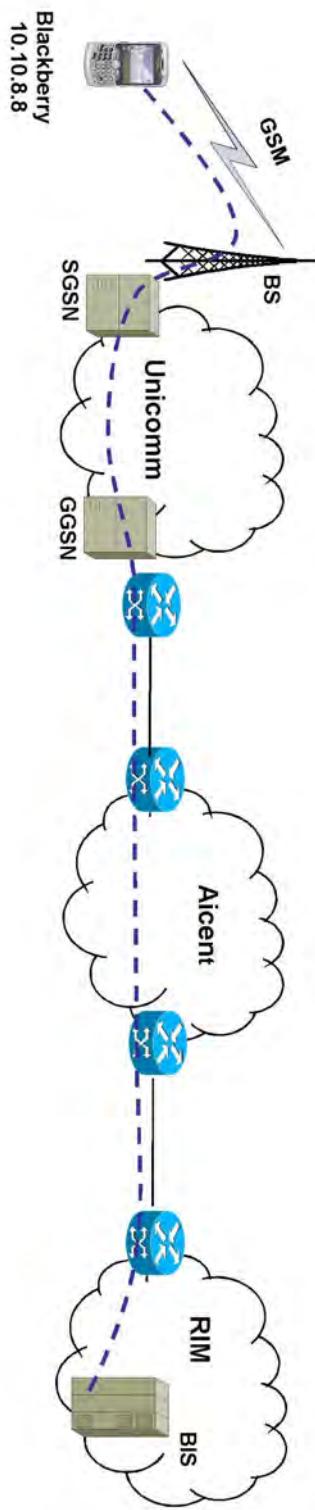
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## Use Cases

#### (4) Roaming-In to China Unicom with MINO SIM (Blackberry)

- Blackberry accesses RIM service via direct connection from carriers to RIM NOC. Since Unicomm does not have relationship with RIM, therefore normally Blackberry Email function will not work in Unicomm Network
- MINO Roaming Service resolves this issue with help of GPRS Data Roaming Service from Aicent
  - MINO acquires designated IP range assigned from RIM for accessing RIM Service
  - MINO participates those IP addresses for those carriers without direct connection to RIM
    - MINO APN for accessing Unicomm GPRS = blackberry.unicomm.minowireless.com → 10.10.8/24 e.g.

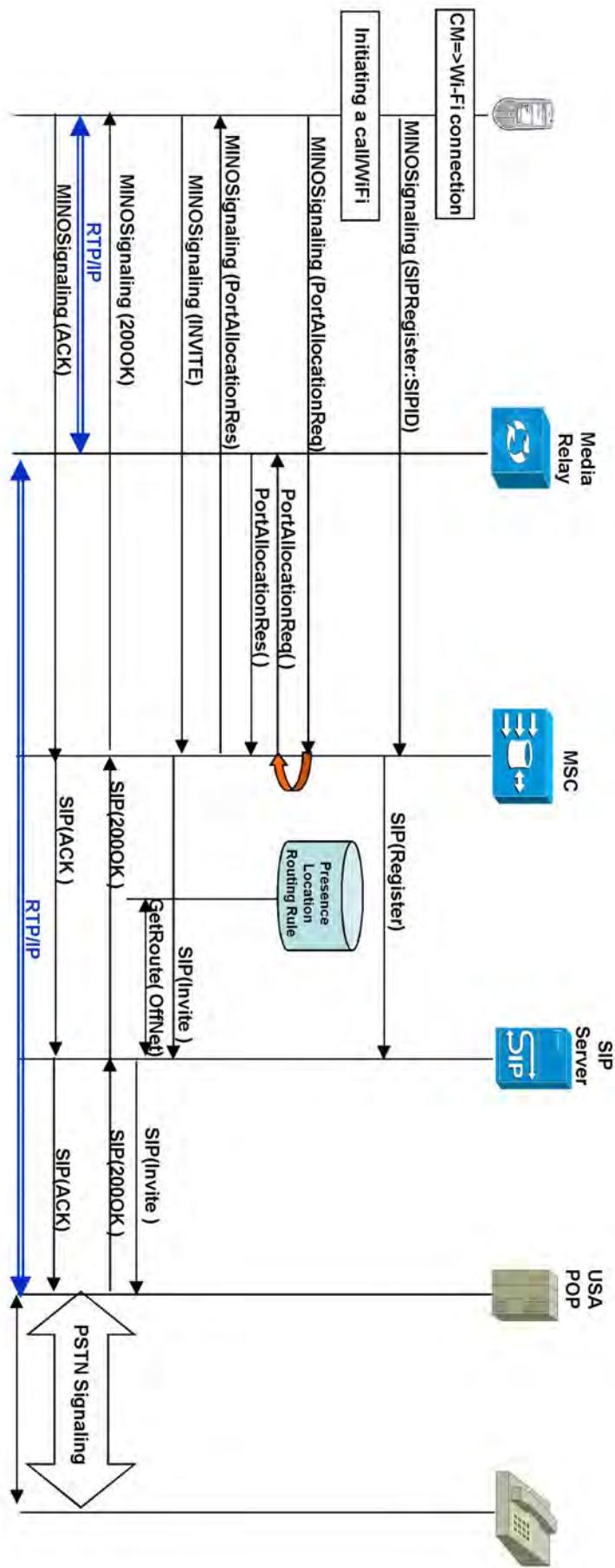


# Use Cases

## (5) Dual Mode Phone with MiNO Client (VOIP over Wi-Fi)

### (a) Calling to Non-MiNO registered number with MiNO VOIP client (Off-Net Call)

- SIP ID = Mobile Phone Number @ roaming.sip.minowireless.com
  - e.g. 14081234567@roaming.sip.minowireless.com
- Called Party is non-MiNO registered mobile number or fixed-line number



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# Use Cases

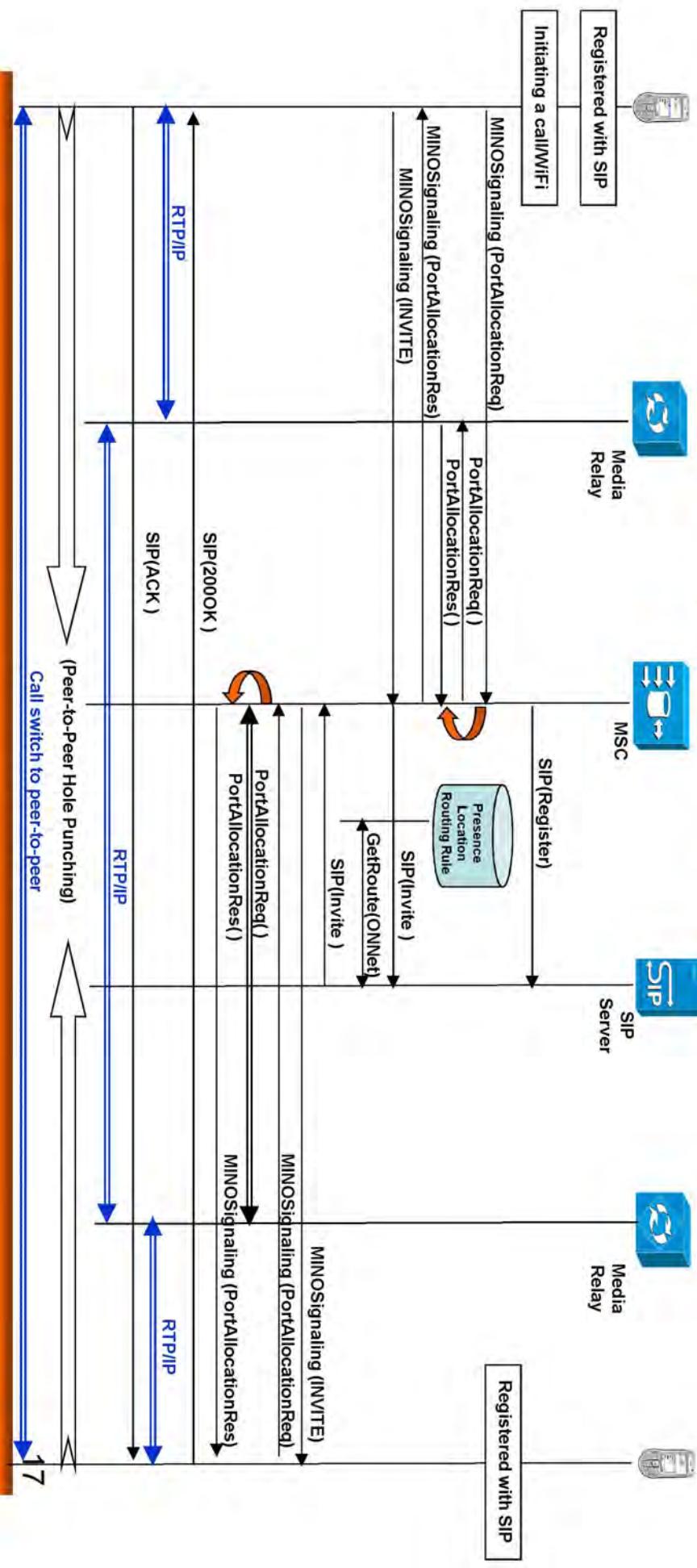
## (5) Dual Mode Phone with MiNO Client (VOIP over Wi-Fi)

### (b) Calling to MiNO registered number with MiNO VOIP client (On-Net Call)

SIP ID = Mobile Phone Number @ roaming.sip.minowireless.com

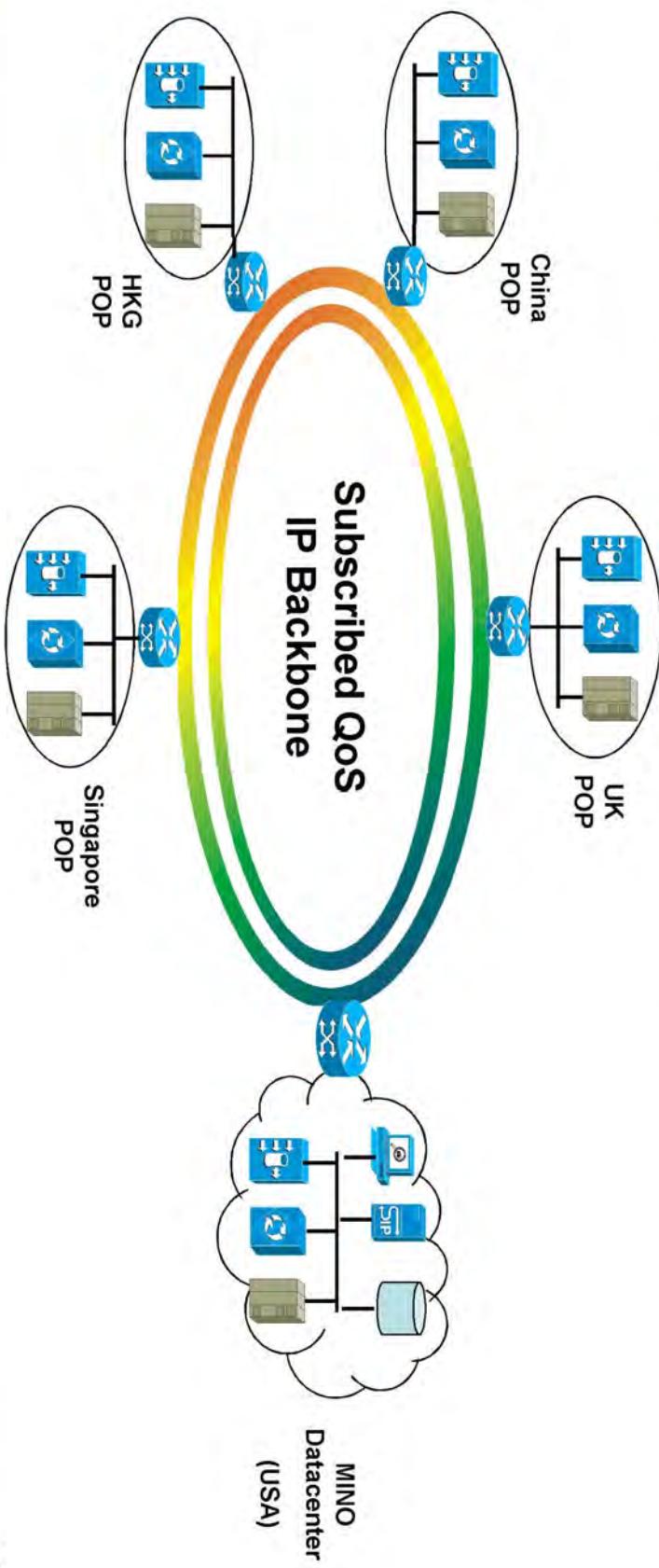
- e.g. 14081234567@roaming.sip.minowireless.com

Called Party is MiNO registered mobile number which is online



# Network Architecture

- Global Coverage Requires Scalable Network
  - Distributed POPs
    - ▼ Media Relay
    - ▼ Media Gateway/Excel Switch (Considering simple Media Gateway to replace Excel Switch)
    - ▼ MNIO Service Controller (MSC)
  - Centralized User Profile and Global Shared Dynamic Routing Table
    - ▼ MiNO Datacenter in USA



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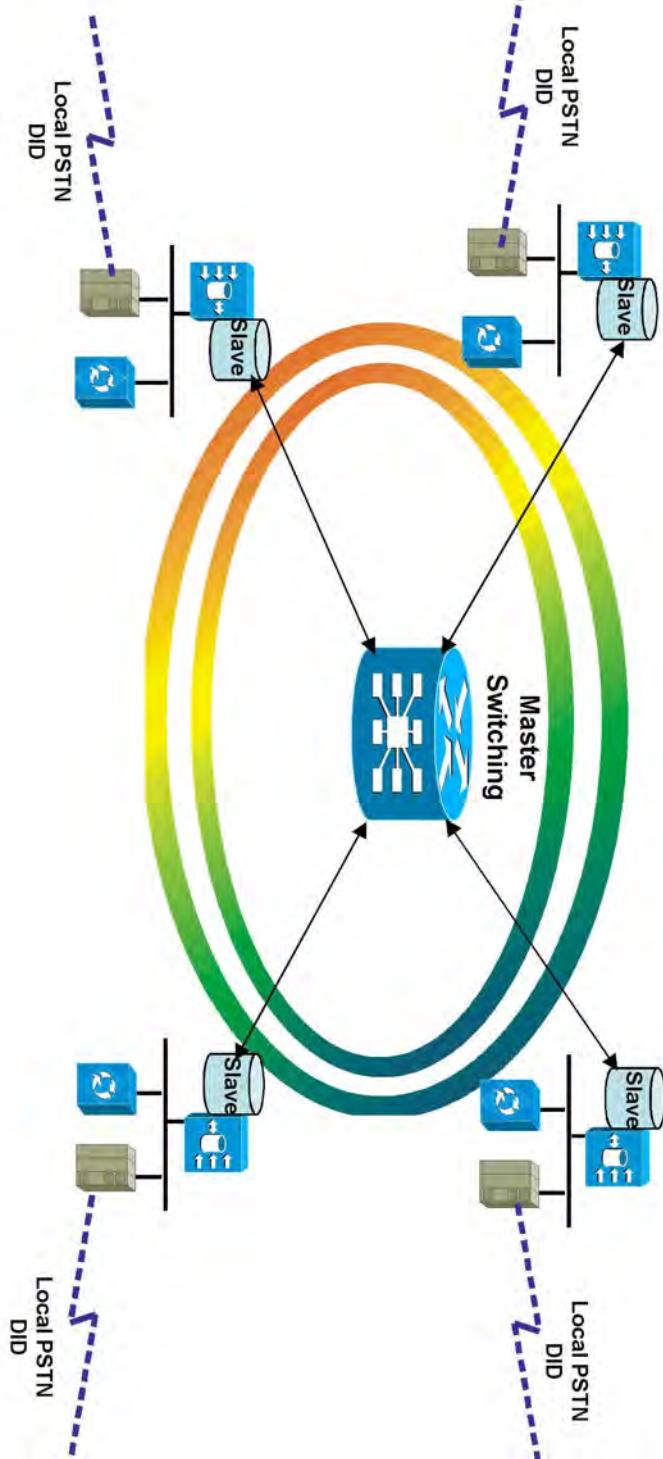
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# Network Architecture

- Centralized Intelligent Routing (Soft switch)
  - Master Routing Table at Datacenter
  - Slave at each edge



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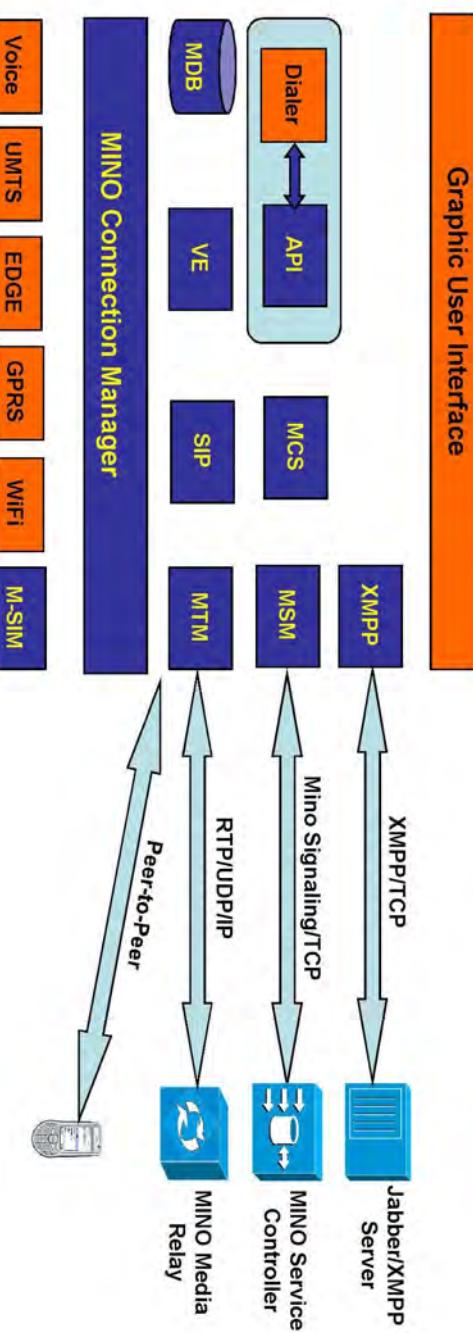
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# MINO Client Architecture

- MINO Mobile Client
  - MINO Signaling Manager (MSM)
    - Encoding/Decoding MINO Signaling
    - Connection to MSC
  - MINO Connection Manager (MCM)
    - Provisioning MINO SIM
    - Selecting Media to connect
    - Determining Channel for Voice
  - MINO Call Switch (MCS)
    - Dialing digit parsing
    - Call switching
      - GSM Call
      - VOIP Call
      - Callback
    - DID Call (different dialing digits for Regular/Voicemail)
- VOIP Engine (VE)
  - RTP/RTCP
  - Codecs
- SIP/XMPP Stacks (SIP/XMPP)
  - Mini XMPP and SIP stacks
- MINO Tunnel Manager (MTM)
  - RTP connection to Media Relay
  - Peer-to-peer Hole Punching
  - Switching from Media Relay to P2P
- MINO DB (MDB)
  - MINO Data
- MINO API (Middleware)
  - API to integrate with existing dialer



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TBD

- **Accessing IP-PBX at Enterprise Premise**
  - Seamless enable IP-PBX to route mobile international call to MiNO
  - IPSec to Enterprise Premise
  - SIP/RTP over IPSec
  - Backend Integration
  - Services
- **Network Based CallForwarding Management**
  - Seamless callForwarding Setup is one of the key features of MiNO
  - International Voice Roaming Service
  - Possibility of using SS7/MAP signaling with help of one or a few carrier partners

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